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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,679	01/31/2005	Yoshihisa Itoh	US01-04072PCT	1775
21254	7590	07/25/2006	EXAMINER	
MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			CHANG, AUDREY Y	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/522,679	ITOH ET AL.	
	Examiner	Art Unit	
	Audrey Y. Chang	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remark

- This Office Action is in response to applicant's preliminary amendment filed on January 31, 2005, which has been entered into the file.
- By this amendment, the applicant has amended claims 3-5 and has newly added claims 6 to 11.
- Claims 1-11 remain pending in this application.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification and the claims **fail** to teach how could and how exactly does the reproduced data being *corrected* "in response to said reference data ... said sector data ... and reference data ... and demodulated to the predetermined data". The specification and the claims fail to teach what *kind of the correction* is being done here with the "response" to the said data. Also what is considered to be the "*response*", the reproduced data **cannot** "response to" these data since the data itself is abstract information.

The specification and the claims also fail to teach how could a coherent beam modulated in response to the predetermined data could provide three-dimensional light interference pattern by itself.

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The interference pattern has to be produced by the interference of at least two coherent light beams. Not just a single beam.

The specification and the claims also **fail** to give explicit teachings and the enablement for providing the “*various kind*” of recording format data and “*various*” recording media. In fact, the specification only gives explicit teachings of *one kind* of recording medium, (i.e. photosensitive material), and *fails* to give *any* explicit teachings concerning the “various kind” of recording *format* data. The claims therefore are not enable by the disclosure.

The claims are therefore non-enable.

Claim Objections

3. Claims 1-11 are objected to because of the following informalities:

(1). The phrase “demodulating the data” recited in claim 1 is confusing and indefinite since it is not clear what is this data.

(2). The phrase “said *reproduced* data” recited in claim 1 is confusing and indefinite since it is not clear **what is considered** to be this reproduced data. It is not clear if the “reference data” is also part of this reproduced data or not. If it is not, then how can this reference data be “reproduced”? It is not clear if there are more than one reproduction steps for getting these various data or not? Furthermore, it is completely not clear how can this “reproduced data” be *corrected* “in response to said *reference* data *reproduced* from ... said *sector* data *reproduced* from ... and reference data”. Now if the reproduced data is corrected response to these data, then it is not clear if the “reproduced data” *include* these data or not, if not what is this reproduced data, if yes, then how can it be corrected by itself?

(3). What is considered to be the “recording format data”? Does this refer to the data format as if they are digital or image, or refer to the distortion of the recorded data due to the distortion of the recording medium? Please specify to make the scopes of the claims clear.

(4). What are these “various kind” of recording format data and what are this various recording media?

(5). What are the differences between the “reference data” and the “sector data” if they all include the same recording format data? Where does the predetermined data recorded in the recording medium.

(6). The phrase “a three dimensional light interference pattern” recited in claim 2 is confusing and indefinite since it is not clear how does this pattern relate to the “three dimensional light interference pattern” recited in its based claim.

(7). It is not clear how do the “sector data” and the “reference data” relate to the “predetermined data” recited in the earlier part of the claim. *For the examination purpose, the sector data is being treated as the “predetermined data”.* Applicant’s clarification is respectfully requested.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Richardson (PN. 6,081,912) in view of the patent issued to Snyder et al (PN. 6,064,586).

Richardson teaches a *holographic memory system* that is comprises a conventional holographic data recording arrangement including a *data storage medium*, a *spatial light modulator* (SLM, column 3, lines 58-60), for *modulating* a light beam with the encoded data image pages interested to be recorded to *produce an encoded signal beam*, (this spatial light modulator and the light beam, then together sever as the *signal generating part*), and a *reference beam*, (implicated generated by a reference light generating part), such that the encoded signal beam and the reference intersect at the data storage medium to create an *interference pattern*. The holographic memory system further comprises a detector (22, Figure 2) serves as the data processing part for detecting the reproduced data by diffracted light from the interference pattern and to reproduce the original image data page, (please see column 4, line 58 to column 5 line 15). *Richardson* further teaches that the image page data includes *test signals* (serve as the *reference data*) so that the recorded interference pattern includes the interference pattern created by the *test signal* and the detector or the data processing part detect *both* the reproduced image page data intended for recording and the *reproduced test signal* such that the retrieved or the reproduced image page data is *normalized or corrected* with respect to the reproduced test data, (please see column 2, lines 20-34 and column 5, lines 43-67). The correction or the normalization is to correct the retrieved or reproduced data from the inconsistency that may have been present in the storage medium. *Richardson* teaches that the data processing part includes interpolator and estimator, (please see Figure 2), which implicitly suggests the data processing process also includes reference data provided by the data processing part.

This reference has met all the limitations of the claims. Although this reference does not teach that the signal beam and the reference beam are coherent light beams, this is implicitly true for the interference of light beams can only occur when the intersected light beams are coherent to each other. This reference also does not teach explicitly that the data storage medium is photosensitive material with

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a supporting part to loadably support the medium. However Richardson teaches that interference pattern between the signal and reference beams is capable of being recorded in the data storage medium, this medium has to be photosensitive in response to the interference light pattern to record it. The interference pattern is implicitly three-dimensional fringes and serves as a diffraction grating. The storage medium has to be supported by a supporting part and has to be able to be loaded upon it for the data storage medium cannot stand in the space by itself and the supporting part will make the storage medium in proper alignment with the rest of the elements in the system.

This reference however does not teach explicitly that the recording medium has a reference data area, a sector data area and a user data area and does not teach explicitly that the reference data or the test signals concerning the inconsistency of the storage media that may often present is recorded in the storage medium in advance. It is implicitly true that the image page data and the test signal are recorded in the data storage medium as interference patterns and therefore as diffraction gratings respectively. The diffraction gratings can therefore be *identified* as “sector area” and “reference area” as desired. **Snyder et al** in the same field of endeavor teaches explicitly that for the image data page having data pattern and reference pattern (such as calibration pattern 20 and alignment pattern 28a and 28b), the information are stored at different *storage sectors* (16, Figures 1-4). And as the page information is being recorded in the storage medium, accordingly the storage medium has the corresponding *sectors* or *areas* for recording the various information. It therefore has been obvious to one skilled in the art to modify the holographic memory system of Richardson accordingly with regard to the teachings of Snyder et al for the benefit of making the reference or test signal data and the intended image data being properly located at different areas of the storage medium for the benefit of easy identifying them. Although these references do not identify the area to further be user data area, such modification is considered to be obvious to one skilled in the art for making the image page data to also include user information for the benefit of providing the user information as part of the retrieved or reproduced data. Furthermore, although these references do

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not teach that the reference information is recorded in advance, such modification is considered to be obvious to one skilled in the art for either to record them in advance or simultaneously will give the *same* result namely normalized the reproduced data to correct it from any errors may cause by the storage medium.

The scopes of claims 3 and 6 are not clear and are not supported by the specification. It is implicitly true that the data processing part providing interpolation and estimation for “various kind” of recording format data and for “various” recording media.

With regard to claims 4-5, and 7-11 it is implicitly true that the recorded interference patterns for both the image page data and the test signals or the reference data (such as alignment and calibration) include recording format data since they are implicitly included in the recording process.

Contact Information

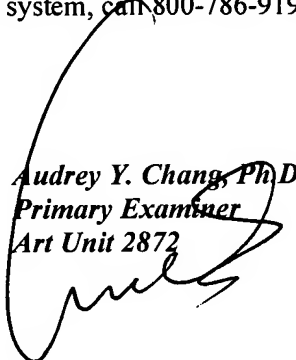
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.